

NEW ENGLAND NOTE

REDISCOVERY OF *SYMPHYOTRICHUM ANTICOSTENSE*
IN THE UNITED STATES

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Symphyotrichum anticostense (Fern.) Nesom (synonyms: *Aster anticostensis* Fern., *A. gaspensis* Victorin) was first described by Merritt Lyndon Fernald from Anticoste Island, Quebec (Fernald 1915). Since its discovery, this species has had a complicated taxonomic history. It has been considered by various authors to be a distinct species (under each of the above names), a variety, or a form unworthy of recognition. In the third case, it has been placed with *Symphyotrichum novi-belgii* (L.) Nesom (synonym: *Aster novi-belgii*), which it closely resembles. Studies by Brouillet and Labrecque (1987) have shown *S. anticostense* (as *Aster*) to be an allopolyploid derivative of *S. novi-belgii* and *S. boreale* (Torr. & Gray) Nesom.

Recent work by Xiang (1994), Xiang and Semple (1996), and Nesom (1993, 1994) has shown that the genus *Aster*, as treated by Fernald (1950) and Gleason and Cronquist (1991), is polyphyletic. Some of the plants traditionally considered to be asters are more closely related to *Erigeron*, the fleabanes, than to *Aster sensu stricto*. In addition, the genus *Solidago* is nested within *Aster sensu lato* and necessitates name changes (i.e., renaming all the goldenrods as *Aster*, or subdividing *Aster* into smaller, monophyletic groups). Their approach, after carefully weighing the data, has been to split *Aster* into a number of small, morphologically similar groups to create a nomenclatural system that matches the phylogeny of these plants.

Identification of *Symphyotrichum anticostense* is somewhat problematic because of its intermediate morphology between *S. boreale* and *S. novi-belgii*, and because it is known to hybridize with the latter. In many respects it resembles a robust *S. boreale*, with firm, ascending leaves that barely clasp the stem, erect branches of the capitulescence, and appressed phyllaries that are herbaceous at the apex and chartaceous at the base. However,

unlike *S. boreale*, it has a thicker stem and rhizome (>2.0 mm wide) and larger leaves (width and length). *Symphyotrichum novi-belgii* is distinguished from both of these species by its phyllaries, that are usually foliaceous and squarrose, its open-branched capitulescence, and herbaceous to fleshy, clasping leaves. A detailed description of this species' morphology, a photo of the type specimen, and key to related species are provided in Labrecque and Brouillet (1990; as *Aster*).

Symphyotrichum anticostense is endemic to northeastern North America, known only from Anticoste Island, the Gaspé, and the St. John and Aroostook River watersheds (Labrecque and Brouillet 1990). It was first collected in the United States by M. L. Fernald in 1901 in Fort Fairfield, Maine (under the name *Aster junceus* Ait.). It was found in circumneutral gravel on the shore of the Aroostook River, near the U.S.–Canada border. Unfortunately, this site was destroyed by a rise in water level caused by Tinker Dam in the early part of the century. Though field surveys have revealed new populations in Quebec and New Brunswick (Luc Brouillet, pers. comm.), this aster has not been collected from Maine for nearly a century. It is listed in *Flora Conservanda: New England* (Brumback and Mehrhoff, et al. 1996) as historic and presumed extirpated in the state (SX). Recent reports of this aster in Maine in Gleason and Cronquist (1991) are based on annotations of historic material by Labrecque and Brouillet (1990).

Utilizing natural community and historic range information gathered from articles (Fernald and Wiegand 1910; Labrecque and Brouillet 1990) and herbarium labels (at MAINE), I surveyed sites along river shores on 5 and 6 September 1998 in seven townships on the St. John and Aroostook Rivers that are known presently, or were known historically, to possess the appropriate substrate and/or associated species. *Symphyotrichum anticostense* is usually found on well-drained, circumneutral, cobble shores that are kept open by water and ice scour. It often grows with other well-known species that favor this habitat, such as *Anemone multifida* Poiret, *Oxytropis campestris* (L.) DC var. *johannensis* Fern., and *Tanacetum bipinnatum* (L.) Shultz-Bip. ssp. *huronense* (Nutt.) Breitung (Labrecque and Brouillet 1990). Searches at most of these areas revealed only common asters, including *Doellingeria umbellata* (P. Mill.) Nees, *S. novi-belgii*, *S. puniceum* (L.) Nesom, and *S. lanceolatum* (Willd.) Nesom.

On a section of scoured, cobble shore on the Aroostook River in Caribou, Maine, I located twelve stems of *Symphyotrichum anticostense* growing in a 0.5 × 0.5 m area. This site seemed least likely for discovery of this aster due to lack of circumneutral plant indicators and its invasion by field species, such as *Phalaris arundinacea* L. and *S. lanceolatum*. Additionally, *Prunus pumila* L. var. *depressa* (Pursh) Gleason, *Rosa blanda* Ait. var. *blanda*, and *Salix interior* Rowlee were found in the area. The plant's identity was confirmed by Luc Brouillet and a specimen deposited at Herbarium Marie-Victorin (MT). This find indicates that additional riverbank habitats may harbor populations of *S. anticostense*.

Symphyotrichum anticostense is considered globally imperiled (ranked G2; Labrecque and Brouillet 1990). Three major threats to its survival in the northeast are: (1) water flow alteration due to damming; (2) riverbank disturbance; and (3) crowding by invasive plants. Dams are likely the most significant threat to *S. anticostense*. In addition to inundation of the plants, dams decrease the effect of spring ice scour by regulating a river's flow, thereby allowing woody species to invade the riverbanks. *Symphyotrichum anticostense* appears to be similar to *Pedicularis furbishiae* S. Wats. in its need for cyclical river shore disturbance to remove woody competitors. Riverbank disturbance by motorized vehicle traffic and development on the river shores have impacted populations of the aster on the Bonaventure River in Quebec (Labrecque and Brouillet 1990). *Symphyotrichum anticostense* is apparently unable to tolerate crowding by invasive plants. At the Caribou station, where much of the region is utilized for agricultural purposes, *Phalaris arundinacea* and *S. lanceolatum* form a dense cover on the shore. Further survey effort is needed to determine the full extent of *S. anticostense*'s presence in Maine and identify methods of mitigating its threats.

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